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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,738	09/30/2003	Michael J. Leeson	42P17288	7952

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EXAMINER

NHU, DAVID

ART UNIT PAPER NUMBER

2818

DATE MAILED: 05/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/676,738

Applicant(s)

LEESON ET AL.

Examiner

David Nhu

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 18-27 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-17 is/are allowed.
- 6) ☒ Claim(s) 1 and 3-9 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAIL ACTIONS

### *Election/Restrictions*

1. *Applicant's election of Species I (Claims 1-17) is acknowledged.*

Claims 1- 17 are remained for examination. Accordingly, claims 18-27 are canceled/withdrawn from consideration as being directed to a non-elected invention.

See 37 CFR 1.142(b) and MPEP § 821.03.

Applicant's election with traverse of **a) Species I, e.g. claims 1-17: A method comprising reducing a height of a plurality of roughness formation on a surface of a film on a semiconductor substrate by exposing the film to a smoothing medium,** is knowledgeable.

Because Applicant did not distinctly and specifically point out the supposed error in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Applicants have the right to file a divisional application covering the subject matter of the non-elected claims 50-79.

The traversal is on the ground(s) that see the election paper. This is not found persuasive because the fields of search for the plural of species claims are NOT coextensive and the determinations of patentability of the plural of species claims are different, that is the plural of species limitations are given weight differently in determining the patentability of the claimed inventions. For example, this application contains claims directed to the following patentably distinct species of the claimed invention:

**b) Species II, e.g. claims 18-21: A method for constructing a memory cell comprising forming a polymeric body on a first electrode, the polymeric body having a plurality of**

Art Unit: 2818

**roughness formation on a surface thereof, the roughness formations having a first height; forming a second electrode on the interface material to change a charge of the polymeric body from a first value to a second value when a voltage is applied across the first electrode and the second electrode, the interface material completely separating the polymeric body from the second electrode;**

**c) Species III, e.g. claims 22-27: A method of constructing a semiconductor device comprising forming a plurality of first conductive lines, extending in a first direction, on the dielectric layer; forming a plurality of a second conductive lines, extending in a second direction, on the interface sections to position each respective pair of polymeric and interface sections between one first and second conductive line, the second direction being transverse to the first direction, the interface section completely separating the polymeric sections from the second conductive lines.**

Therefore, the strategies for doing text searching of the plural of species are different. Thus, separate searches are required.

The requirement is still deemed proper and is therefore made FINAL.

### **Claims Objection**

2. Claim 1, "a film on a semiconductor substrate by exposing the film to a smooth medium" is not described in the specifications.

Claims 3, 8, "removing the film from the smoothing medium; the smoothing medium is solvent" are not described in the specifications.

Claim 9, "the solvent is ethyl lactate" is not described in the specifications.

Claim 15, "the wafer" should be --the **semiconductor** wafer--

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3-9 are rejected under 35 U.S.C. 102 (e) as being anticipated by Kai et al (5,057,623) and Sakaguchi et al (6,429,095 B1).

**Regarding claim 1**, Kai, (see figure 1, col. 1, lines 5-67, col. 14, lines 35-67, col. 15, lines 1-37), teaches a method comprising: reducing a height of a plurality of roughness formations on a surface of a film on a semiconductor substrate by exposing the film to a smoothing medium.

**Also**, Sakaguchi, (see figures 2A-2E, col. 4, lines 58-67, col. 5, lines 1-67, col. 6, lines 1-60), teaches a method comprising: reducing a height of a plurality of roughness formations on a surface of a film on a semiconductor substrate by exposing the film to a smoothing medium.

Regarding claim 3, Sakaguchi, (see figure 2E), teaches removing the film 22 from the smoothing medium.

Regarding claims 4, 5, Kai, (see figure 1), teaches the film is copolymer comprising organic fluorine, methyl ethylene..

Regarding claims 6, 7, (Kai, see figure 1; Sakaguchi, see figures 2A-2E), teach the semiconductor wafer ; forming the film on the semiconductor wafer while the semiconductor wafer is spun.

Regarding claims 8, 9, Kai, (see figure 1), also teaches the smoothing medium is solvent which

is ethyl.

***Allowable Subject Matter***

5. Claims 10-17 are allowed.

The following is an examiner's statement of reasons for allowance: removing the smoothing solvent from the film by spinning the semiconductor wafer about the central axis thereof, the roughness formation having a second height after said removal, the second height less than the first height.

Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The roughness formations have a first height before said exposure and a second height after said exposure, the second height being less than the first height.

**Conclusion**

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Watanabe'600 is cited as of interest.

7. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see 710.02 (b)).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Nhu, (571)272-1792. The examiner can normally be reached on Monday-Friday from 7:30 AM to 5:00 PM.

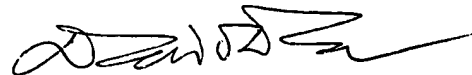
Art Unit: 2818

*The fax phone number for the organization where this application or proceeding is assigned is (703)972-9306.*

*Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.*

*Information regarding the status of an application may be obtained from the patent application information retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).*

David Nhu



May 4, 2006